adding extra axles to carry more weight, instituting double trailers, and developing new trailer-loading patterns, delivery schedules, and highway routings. An additional 40-50% fuel saving was realized during this period by converting the highway fleet from gasoline power to diesel, improving trailer design, and starting a new maintenance program that emphasized fuel economy.

With the threat of fuel shortages in 1973, Kingsway spent many months testing individual components in order to develop fuel-efficient vehicles. These were introduced to the fleet in 1976, and fuel savings of 30% were realized between 1975 and 1980. Kingsway's fuel-efficient vehicles are equipped with:

- air deflectors mounted on cab roofs,
- thermally modulated fans,
- radial tires,
- fuel-efficient, low-RPM engines, coupled with high-speed differentials and conventional cab design.

The following minor changes also helped reduce fuel consumption:

- introducing multi-viscosity motor oils,
- replacing city trucks with small tractor trailers to carry more freight per vehicle,
- emphasizing speed controls.

Improved scheduling of city deliveries and use of larger trucks have saved fuel and enabled Kingsway to reduce the fleet by 25 vehicles. The updating of Kingsway's tachograph program to include idling time as well as speed is expected to save 2% of the fuel used. The recent introduction of fuel-oil blenders that filter and blend used motor oil with diesel fuel is expected to save 0.2-0.5%.

Kingsway's research continues into further fuel savers which are listed in the checklist at the end of this brochure.

The Easy Goin' audio-visual presentation that serves as a professional driver's guide to fuel consumption is being introduced in 1981. It should help to further reduce fuel consumption by 5-15% and to ensure that the savings gained through improved technology and administrative improvements will not be lost through poor driving practices.

Fuel-Saving Checklist

How many of these fuel-saving innovations has your company tried?

Equipment Changes

- ☐ Increase trailer size or use double trailers.
- ☐ Increase axle spreads and add extra axles to carry more weight.
- ☐ Replace city trucks with a fewer number of tractor trailers.
- ☐ Change trailer design to rounded corners and interior posts to produce less air drag.
- ☐ Mount air deflectors on cab roofs.
- ☐ Introduce thermally modulated fans.
- ☐ Change to radial tires.
- ☐ Use fuel-efficient, low-RPM engines, coupled with high-speed differentials and conventional cab design.

Consider using:

- ☐ idle-termination devices
- ☐ synthetic lubes for transmissions and differentials
- ☐ fuel-oil blenders that filter and blend used motor oil with diesel fuel
- ☐ propane-powered city tractors.
- ☐ Convert the highway fleet from gasoline to diesel.

Administrative Changes

- ☐ Introduce the Easy Goin' driver training program to your company.
- ☐ Use motivational incentives to change your driver's habits.
- ☐ Develop new trailer-loading patterns, delivery schedules, and highway routings.
- ☐ Convert city trucks to small tractor trailers.
- ☐ Emphasize speed controls (90 km/h on highways.)
- ☐ Use tachographs to monitor driving habits (especially driving speeds and idling times).
- ☐ Monitor fuel records to guard against losses and to measure the progress of your fuel saving program.

Maintenance Changes

- ☐ Emphasize fuel economy measures. Watch out for low tire pressure, clogged air breathers, dragging brakes, wheel alignment, and out-of-tune engines.
- ☐ Introduce multi-viscosity motor oils.

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Saving Truck Fuel:

2 Case Histories

Trucksave

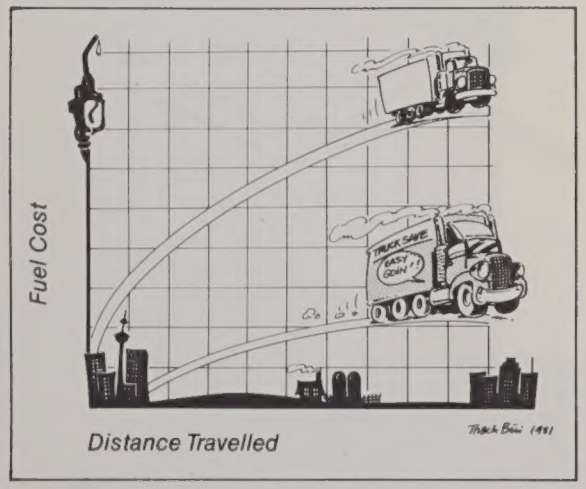
Saving Truck Fuel

Rising fuel costs have encouraged many trucking companies to explore ways of reducing their fuel consumption. Technological and administrative changes have led to some savings, and new fuel-saving devices and methods of operation have resulted in others which are listed in the checklist at the end of this brochure.

However, the use of fuel-efficient vehicles, fuel-saving devices, and improved operating practices can be completely wasted if they are not accompanied by improved driving habits. Realizing this, many companies have instituted driver-training programs that teach their drivers to make the most of their equipment and get the most from their fuel.

A fuel-efficient vehicle, properly maintained and properly driven, can attain a 50% fuel saving over an inefficient vehicle that is poorly maintained and poorly driven. The two companies whose programs are described in this brochure have proven that significant savings can be achieved.

Company One emphasized driver training and speed control, whereas Company Two focused on equipment improvements.



Travel farther using less fuel with the Easy Goin' Program.

Company 1 Sears

Since the spring of 1976 Sears has reduced its fuel consumption by over 30% through increased driver training and a more efficient maintenance and safety program. The Sears fleet of about 1,200 trailers and 165 tractor units travels more than 17.5 million miles per year. Thus, the savings realized are substantial.

All of Sears' tractors and trailers are equipped with radial tires and air deflectors. Sears' tractor specs have been rewritten to take advantage of the newer, more fuel-efficient engines. In 1979, the company adopted a maximum highway speed of 90 km/h (55 mph). This in itself has led to substantial tire, maintenance, and fuel savings as the accompanying graph shows.

Particularly notable in Sears' fuel-saving efforts is the company's driver-training program. Sears employs driver-trainers who are stationed at each of the company's terminals. These trainers attended the Driver Trainers' Course at George Brown College or the Ontario Safety League and now follow the company's basic training policy. They carry out training, promote safety, and educate all drivers on the importance of proper professional usage of equipment to ensure longer life and better fuel economy.

Some training is given in the vehicle, but much of it is accomplished through meetings and presentations both by the driver-trainers and by visiting specialists. Every vehicle is equipped with a tachograph and the charts are monitored accurately each day to establish drivers' on-the-job routines and driving habits.
The results of both the 90 km/h speed limit and the driver-training program have been as follows:

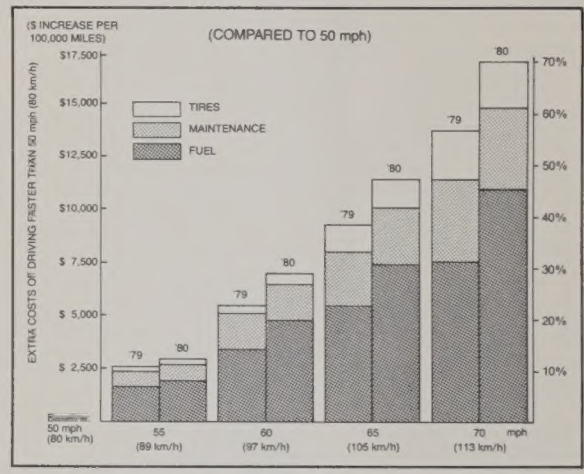
- 30% fuel savings,
- fewer accidents,
- longer tire, brake, and driveline (clutch, drive shaft, and axles) life,
- a low incidence of en route downtime,
- an extension of the cost-effective life span of the whole vehicle,
- reduced driver turnover.

The total Sears program — new equipment and devices, new methods of operations including such measures as cutting down on idling, and emphasizing driver-training — has succeeded in reducing fuel consumption by over 30%.

Sears' Fuel Savings

	1975	1980	Savings
Avg. MPG	4.5 - 5.0	7.42	2.42 - 2.92
Fuel Consumption Gallons	3,725,345	2,565,055	1,160,290

How Costs Increase With Speed



Company 2 Kingsway

Since the mid-1960's Kingsway Transports Limited has experienced great success in conserving fuel. These savings have been realized through a wide range of programs. Since Kingsway's annual fuel bill amounts to over five million dollars, the company is continuing to seek ways of finding further cost-cutting measures.

From 1965 to 1975 Kingsway made administrative and equipment changes that resulted in fuel savings of 30% on each pound of freight moved. These included increasing trailer size and axle spreads,